

DONALD G. EVERIST  
SUDHIR K. KHANNA  
WARREN M. POWIS  
JOHN R. URAM, JR.  
ROBERT W. GUILL  
WILSON A. LA FOLLETTE

COHEN, DIPPELL AND EVERIST, P. C.  
CONSULTING ENGINEERS  
RADIO-TELEVISION  
1300 L STREET, N. W.  
SUITE 1100  
WASHINGTON, D. C. 20005  
(202) 898-0111

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July 11, 1996

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW Room 222  
Washington, DC 20554

Re: Comments of Cohen, Dippell and Everist, P.C.

Dear Mr. Caton:

Enclosed are 11 copies (original and 10) of the response by Cohen, Dippell and Everist, P.C. regarding MM Docket No. 87-268, In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service.

If there are any questions, please do not hesitate to contact this office.

Sincerely,

  
Donald G. Everist

DGE:cc  
Encl.

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COHEN, DIPPELL AND EVERIST, P. C.

Before The  
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In the Matter of )

Advanced Television Systems )  
and Their Impact Upon the )  
Existing Television Broadcast )  
Service )

MM Docket No. 87-268

**Introduction**

These comments in the Fifth Further Notice of Proposed Rule Making ("Notice") are respectfully submitted by Cohen, Dippell and Everist, P.C. ("CDE"<sup>1</sup>). CDE acknowledges the considerable progress that has been realized since the inception of MM Docket 87-268 ("Docket") and applauds the Commission for its guidance and the efforts of the many industry organizations and individuals that participated in the Advisory Committee on Advanced Television Service. The process promises to yield results far beyond the goals, hopes and dreams of many when this endeavor began. As the Federal Communications Commission ("Commission") continues in its pursuit of digital television ("DTV") it continues to explore and examine how this service can be realized.

The Notice seeks to further this process. CDE wishes to offer its comments in the context of the technical aspects of the Notice.

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<sup>1</sup>Cohen, Dippell and Everist, P.C. or its predecessors is a consulting engineering firm and offered its expertise to the broadcast industry.

These comments are directed in two areas. The introduction of a new DTV service while maintaining the existing television (NTSC) and other services and second, whether or not the Commission should adopt a complete, partial or flexible standard.

Introduction of New DTV Service While Maintaining  
Existing Television (NTSC) Service

In Paragraph 55, the Notice states that, "Protection from interference is a fundamental commission function that must be considered when introducing new technologies into spectrum allocation currently in use." (emphasis added)

Further, the Commission has requested comments on limitations on stations using the ATSC DTV standard in order to avoid interference to existing NTSC service or reception of other ATSC DTV stations. CDE encourages the Commission to address very specific issues of other potential interference mechanisms, including the following items. These in part depend upon what DTV frequencies are used to create the allotment table.

- Land-mobile operations, first-adjacent and second-adjacent in frequency to band-edge TV Channels 2, 4, 5, 7, 13, 14, and 69.
- Educational FM operations above 88 MHz from Channel 5 and Channel 6 DTV operations.
- Land-mobile operations both co-channel and first/second-adjacent channels presently sharing TV Channels 14 through 21.
- Radio astronomy quiet zones which require protection within TV Channel 37. Also, other radio astronomy observing frequencies and various other frequencies which are harmonically related from various UHF-TV channels.
- EMI concerns relating to potential out-of-band emission to Federal Aviation Administration aeronautical frequencies.

- Transmitter-induced intermodulation effects resulting from local DTV/DTV and DTV/NTSC channel spacings reduced from current 6-channels to 1, 2, 3, 4, or 5 channels. Corresponding receiver-induced intermodulation effects to existing NTSC and proposed ATV receivers should also be addressed.
- Numerous international concerns resulting from common land borders with Canada and Mexico.
- Interference to existing TV translators and LPTV stations.

CDE encourages the Commission to give full consideration of these potential interference mechanisms so that these issues can be adequately addressed in order to provide a comprehensive and orderly transition into the DTV service.

Further, it is recognized that any U.S. channeling plan and associated DTV emission masks should be designed to protect existing TV and adjacent band users in Canada and Mexico. It must also assume that each existing Canadian and Mexican TV station will require a second TV channel for digital TV use in a manner similar to that proposed for the U.S.

Under Paragraph 56, the Commission proposes an emission mask to limit out-of-channel emissions from a DTV station transmitter. The proposed minimum performance is proposed as:

- Attenuation in dB =  $35 + [(\Delta f)^2 / 1.44]$

This results in the following attenuation figures.

	Edges of DTV Channel	35.0 dB
1	MHz from DTV Channel	35.6
2	MHz from DTV Channel	37.8
3	MHz from DTV Channel	41.25
4	MHz from DTV Channel	46.1
5	MHz from DTV Channel	52.4
6	MHz from DTV Channel	60.0
7	MHz from DTV Channel	69.0
8	MHz from DTV Channel	79.4

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9	MHz from DTV Channel	91.25
10	MHz from DTV Channel	104.4
11	MHz from DTV Channel	119.0
12	MHz from DTV Channel	135.0

The potential of interference from DTV operations based on the above data indicates the potential for severe interference to adjacent spectrum users from band edge DTV channels (Channels 2, 4, 5, 6, 7, 13, 14, 36, 38, and 39) and from DTV channels removed by 6 MHz from the band edges (Channels 3, 5, 6, 8, 12, 15, 35, 39, and 68) and therefore special consideration should be made.

In addition, transmitter to transmitter induced intermodulation effects can be expected due to the anticipated close channel spacings. It is anticipated that channel spacings well below the current 6-channel standard between DTV/DTV stations and DTV/NTSC stations will be necessary to accommodate the complementary DTV channels. For example, the Commission's first draft allotment plan contained numerous first, second, third adjacencies within various markets. If true, transmitter reradiated intermodulation effects to other TV stations (DTV and NTSC) as well as to adjacent users should be fully explored. Full consideration will help to eliminate transition problems of inaugurating a new DTV service while maintaining the continuity of existing interference-free service by current licensed operations.

#### Adoption of a Standard

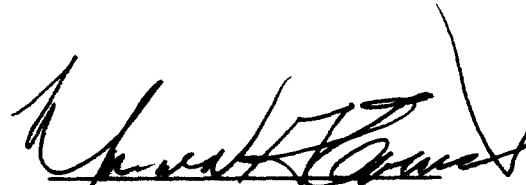
CDE supports the adoption of a complete standard. CDE appreciates that various issues raised if a standard is not adopted. However, CDE believes that the adoption of a complete standard will:

- expedite the introduction of a new DTV service
- provide more protection to existing users in which the DTV operations must co-exist
- provide a basis for bilateral negotiations with our neighbors, Canada and Mexico by reducing the uncertainty raised by not having a complete standard
- provide consistency with prior FCC determinations in this proceeding which encouraged the adoption of one standard

Summary

CDE encourages the introduction of the DTV service while maintaining the integrity of other licensed operations for which DTV spectrum will share. Further CDE believes that DTV introduction will be advanced through adoption of a complete standard. CDE looks forward to participating in further Commission notices for the technical implementation of the DTV service.

Respectfully Submitted,



Donald G. Everist,  
President

DATE: July 11, 1996